



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/080,640	02/21/2002	Peter E. von Behrens	26625-1002	8160
23419	7590	06/01/2004	EXAMINER	
COOLEY GODWARD, LLP 3000 EL CAMINO REAL 5 PALO ALTO SQUARE PALO ALTO, CA 94306			NGUYEN, HOANG M	
			ART UNIT	PAPER NUMBER
			3748	

DATE MAILED: 06/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/080,640

Applicant(s)

VON BEHRENS ET AL.

Examiner

Hoang M Nguyen

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 21-49 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 38-49 is/are allowed.
- 6) ☒ Claim(s) 1-19, 21-24 and 27-37 is/are rejected.
- 7) ☒ Claim(s) 25 and 26 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Applicant's amendment dated April 14, 2004, has been fully considered.

Newly added claims 38-49 have been considered and are allowed.

Regarding claim 1 and its dependent claims, Applicant has argued that the newly added limitations, namely "the first and second surfaces of the heat sink" would define over the applied references. The Examiner disagrees. As clearly noted in the Advisory Action, First, Applicant is reminded that claimed subject matter must be interpreted as broad as possible. The Examiner understands that the claimed recesses are 74, 84, and 814 as noted by Applicant. Also, on page 16, lines 26-30, and lines 1-14, page 17, of this application clearly describes that "the rigid member acts as a heat sink", and "Because the recess 74 cut into the rigid member at each end of edge 73, the heat transfer from the wire to the plate through the air will be decreased at these ends". Basically, Applicant simply recites a recess in a heat sink with the heat transfer decreasing at the ends (note claim 1 for example).

Gummin et al reference teaches a heat sink 41 with holes (recesses) for the SMA wires 36 going through. Please note said holes are near the proximity of the wire at the central portion of the wire because the central portion of the wires 36 are inside the holes (or recesses), the ends of the wires are far away from the ends of the holes (notes figures 1-2 of Gummin). Because the claims simply recite a recess with heat transfer reducing at two ends, the Gummin et al reference clearly meet the claim

Art Unit: 3748

limitation. Now, the newly added limitation by adding first and second surfaces of the heat sinks does not define over the references because the Examiner is taking the position that the central body of the heat sink is the first surface and the end portions of the heat sink is the second surface, and that still meets the claimed limitation.

The MacGregor reference is similar to Gummin et al, Figure 7 of MacGregor shows a heat sink 77 having a recess therein, the SMA wires have both ends located far away from said recess when compared with the central portion of the wires. Hence, MacGregor meets the claimed subject matter as claimed.

Applicant argues that Jacob does not disclose SMA wires. The Examiner disagrees, even though Jacob does not use the term "SMA wires", his bimetal elements 20, 22, are expanded when heated and contracted when cooled, that is the basis concept of SMA wires. Also, please compare the figures of Jacob with figures 6-8 of this application, both disclose almost the same features, a housing having a central portion and two recesses at two ends, and the bimetal elements being connected with the outside of the recessed. Therefore, it's clear that Jacob meets the claimed invention.

For the reasons set forth above, the rejection from the previous Office Action has been repeated herein.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 14-15, 17-18, 21, 37, are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. 6326707 (Gummin et al).

Gummin et al discloses a shape memory alloy actuator comprising a plurality of conductive plates with SMA wires 36A-D, the output of the actuator is the total movement of all SMA wires.

Claims 1-19, 21, 37, are rejected under 35 U.S.C. 102(e) as being fully anticipated by U.S. patent 6574958.

Claims 22-24, 27-33, 36, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. 4027953 (Jacob).

Jacob discloses a thermal actuator comprising a rigid elongate member (housing 12) having a recess formed therein, bimetal elements 20, 22, being shape memory alloy wires mounted inside said recess wherein the first ends of said elements are mounted to the recess.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. 6326707 (Gummin et al) in view of U.S. 2518941 (Satchwell). Gummin discloses all the claimed subject matter as set forth above in the rejection of claim 1, but does not disclose an insulating layer between the conductive plates. Satchwell et al is relied upon to disclose that it's well known to have insulating layer 4 between conductive plates to prevent shocks. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide insulating layer between the conductive plates in Gummin et al as taught by Satchwell for the purpose of preventing shock.

Claims 6-13, 16-18, are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. 6326707 (Gummin et al). Gummin discloses all the claimed subject matter as set forth in the rejection of claim 1, but does not disclose the specific distance and dimension as claimed. However, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the actuator in Gummin et al to have the specific distance and dimension as claimed for the purpose of obtaining appropriate outputs from said specific dimensions.

Claim 19 is rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. 6326707 (Gummin et al) in view of U.S. 5165897 (Johnson). Gummin discloses all the claimed subject matter as set forth above in the rejection of claim 1, but does not disclose the actuator activating a switch of a power circuit. Johnson discloses an SMA actuator comprising SMA wire 28 for actuating a power circuit switch 50. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the actuator in Gummin et al to activate a power circuit switch as taught by Johnson for the purpose of switching the circuit on/off.

Claims 34-35 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. 4027953 (Jacob). Jacob discloses all the claimed subject matter as set forth above in the rejection of claim 22, but does not disclose the second spacing is greater than the first spacing and is related to the distance between the shape memory alloy and the recess. However, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the size and the shape of the second spacing in Jacob for the purpose of achieving appropriate work output.

1. Claims 1-19, 21-37, are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over the pending claims of US patent 6574958 in view of U.S. 6326707 (Gummin et al). Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons.

US 6574958 recites all the claimed subject matter as claimed in this application but the arrangement of the claimed elements is different, for example, some elements are cited in dependent claims instead of in the independent claims in this application, and no heat sink. Gummin et al discloses that it's well known to provide a heat sink 41. It would have been obvious to provide a heat sink in the system of US patent 9574958 as taught by Gummin et al for the purpose of removing heat. Moreover, a person having ordinary skill in the art would have rearrange the claimed elements to be the same as the arrangement in this application for the purpose of obtaining the same results.

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Art Unit: 3748

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 25-26, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 38-49 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Nguyen whose telephone number is (703) 308-3477. The examiner can normally be reached on Monday--Thursday from 7:30 AM to 6:00 PM.

Art Unit: 3748

Any inquiry concerning any general questions regarding patent examining policies and procedures should be directed to Patent Assistance Center (PAC) at 800-PTO-9199 or (703)-308-HELP (703)-308-4357), or Customer Service of TC 3700 at (703) 306-5648.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion, can be reached on (703)-308-2623. The fax phone number for the Examiner is (703) 746-4559.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0861.

A handwritten signature in black ink, appearing to be 'H.M. Nguyen', with the date '05/27/04' written to its right.

HOANG NGUYEN
PRIMARY EXAMINER
ART UNIT 3748

Hoang Minh Nguyen
May 27, 2004